

consisting of unsubstituted and substituted linear, branched, cyclic or partially cyclic alkyl radicals and annelated cyclic radicals, containing 1 to 20 carbon atoms; unsubstituted and substituted monocyclic or polycyclic aryl radicals which optionally also may contain hetero atoms; and aralkyl radicals; [the] wherein substituents on the cyclopentadienyl ring may also form annelated structures comprising one or more fused benzene, naphthalene or cyclohexene rings, which optionally may contain hetero atoms, and the two cyclopentadienyl rings may also be connected through a bridge.

3. (amended) A catalyst system according to claim 1, characterised in that R' and R" are selected from the group [comprising] consisting of chloride, methyl, benzyl or phenoxymethyl, and combinations thereof.
4. (amended) A catalyst system according to claim[s] 1 [to 3], characterised in that Cp is an unsubstituted cyclopentadienyl and that R' and R" are equal and are either methyl or benzyl.
5. (amended) A catalyst system according to claim[s] 1 [to 4], characterised in that the metallocene is bis-cyclopentadienylzirconium dibenzyl.
6. (amended) A catalyst system according to claim 1, characterised in that said support is a particulate, inorganic oxide selected from the group [comprising] consisting of alumina, silica, titania, zirconia, magnesia, and combinations thereof.
7. (amended) A catalyst system according to claim 6, characterised in that said support is silica having [the] a shape of spherical or spheroidal particles with a particle size in [the] a range of from 20 μm to 150 μm , and a surface area from 200 m^2/g to 600 m^2/g .
8. (amended) A catalyst system according to claim 1, characterised in that the chromium is present in an amount from 0.1 % to 10 % by weight calculated as metallic chromium based on [the] weight of the chromium/silica catalyst of a) and b).

9. (amended) A catalyst system according to claim 8, characterised in that the chromium is present in an amount from 0.5 to [2,0] 2.0 % by weight of chromium.

10. (amended) A catalyst system according to claim 1 [to 5], characterised by a molar ratio between zirconium and chromium in the final catalyst in [the] a range from 0.1:1 to not higher than 2:1.

11. (amended) A catalyst system according to claim [9] 10, characterised in that said molar ratio between zirconium and chromium is from 0.5:1 to 1:1.

12. (amended) A method for the preparation of [the] a catalyst system for polymerisation of ethylene, comprising chromium oxide and a metallocene supported on an inorganic support [of claim 1], the method comprising the steps of:

- a) calcining a support being a particulate, inorganic oxide selected from the group [comprising] consisting of alumina, silica, titania, zirconia, magnesia, and combinations thereof,
- b) joining onto [the] a surface of said support a chromiumorganic compound to obtain a catalyst precursor,
- c) subjecting said catalyst precursor to oxidising conditions to obtain [the] chromium in an oxidised state, and
- d) subjecting said catalyst precursor to reducing conditions to obtain a prereduced catalyst, characterised by
- e) reducing the oxidised chromium to obtain [the] a main part thereof in a bivalent oxidation state, and
- f) contacting said reduced catalyst with a metallocene compound having [the] a formula:



wherein each Cp, equal or different, is an unsubstituted or substituted cyclopentadienyl compound, and R' and R'', independant of each other, are selected from the group [comprising] consisting of alkyls having 1 to 6 carbon atoms, unsubstituted or substituted benzyl, and phenoxy substituted with alkyls having 1 to 6 carbon atoms, and R' or R'' may be a halide.